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#### **ABSTRACT**

This handb ok can be used by anyone with an interest in mapmaking. The step-by-step guide shows how to draw, plan, and color a one-of-a-kind world map. There is a list of materials, supplies, worksheets, and a trouble-shooting appendix for special situations. The guide also provides a variety of enrichment activities to promote continued involvement with the world map. The activities stress cooperative problem-solving for participants of all ages. There are three parts in the guide: (1) "How to Make Your World Map"; (2) "How to Use Your World Map"; and (3) "Resources for Making Your World Map." An appendix containing directional material and a bibliography is also included. (EH)



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# The World Map Project



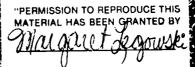
Handbook

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# The World Map Project

Peace Corps
Office of World Wise Schools



Based on The World Map Project Manual by Barbara Jo White

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This map uses the Robinson Projection.

This study guide contains materials written by educators and others that represent their individual views. These views are not official opinions of the United States government or of Peace Corps.

WWS 23T-95



### About this Handbook

The World Map Project brings people together to create large, colorful maps of the world. Initiated by a Peace Corps Volunteer, this project promotes geography literacy in an engaging way while also building a sense of community among mapmakers. It is one example of how Volunteers meet the goals of their Peace Corps service.

Since 1988, enthusiastic Volunteers have carried this highly acclaimed program to over 40 countries around the world. Returned Volunteers have spread the idea across the U.S. as well. Because of the wide appeal of the activity, this guide (a revision of an earlier manual) has been written for many different groups: U.S. teachers, Peace Corps Volunteers, Returned Peace Corps Volunteers, scout leaders, youth workers, and others.

You do not need to be a skilled cartographer: this guide gives you all the information you need to create your own one-of-a-kind world map. Inside you'll find step-by-step instructions on how to plan, draw, and color your map. This handbook also lists materials, supplies worksheets, and even includes a trouble-shooting appendix for special situations.

The guide also provides a variety of enrichment activities to promote your group's continued involvement with the world map. These activities stress cooperative problem-solving and are for participants of all ages. You do not need to be a classroom teacher to introduce them successfully. All activity plans list materials, provide instructions, and, if needed, supply background information. If you are part of the World Wise School program, you'll also find suggestions for using the map to enhance your Peace Corps connection.

Whatever your group, wherever you are, World Wise Schools welcomes your participation in this exciting worldwide project. As always, we also invite your comments and suggestions; your ideas are important to us. Happy mapmaking!



# **Table of Contents**

The World Map Project: 10 Questions	5
Part I: How to Make Your World Map	
Getting Started	9
The Grid Method:	10
Setting up Your Grid	10
Drawing Your Map on the Grid	
The Projection Method	
Coloring the Map	18
Labeling the Map	20
Celebrating the Map's Completion	21
Keeping the Map Current	21
Part II: How to Use Your World Map	
Activities Before and During Mapmaking:	23
How World Wise Are You?	23
Create Your World	
Drawing by Grid	
Changing the World	27
Activities for a Completed World Map:	20
Musical Countries: A Game	27 20
What Shape Am I?	ວບ
We are the World	
Made In.	
World Watersheds	
Math and the Map	38
Part III: Resources for Making Your World Map	
The World Map	
World Map Section Sheets	
World Map Color Scheme	56
Practice Exercise #1: Enlarging Drawings by Grid	63
Practice Exercise #2: Drawing Maps by Grid	
Appendix	
How to Draw Your Grid on Walls	67
How to Draw Your Grid on Floors, Playgrounds and Other Flat Surfaces	69
How to Make a Tissue Paper World Map	70
Bibliography	
How to Access World Wise Schools Materials	73



## The World Map Project: 10 Questions

#### How did the World Map Project get started?

Back in 1988, Peace Corps Volunteer Barbara Jo White was waiting for a bus in the Dominican Republic when she got an idea. Getting kids interested in geography was tough without materials, so why not paint a map of the world straight on the wall? With the approval of school authorities, Barbara Jo and her students set to work. From there the project blossomed. Soon the brightly colored maps adorned the walls of over a hundred schools in the Dominican Republic.

Within two years, Peace Corps Volunteers had introduced the Project to communities around the world. Back home, Returned Volunteer groups adapted Barbara Jo's original manual to share the idea with U.S. teachers. Interest in the project kept growing. Former President Jimmy Carter publicly commended it. Corporations lent support too, including IBM, which has promoted the project in all its "adopt-a-school" programs in Atlanta.

Today the World Map Project has spread to hundreds of cities, towns, and villages across the globe. Many of the hand-painted maps brighten the walls of schools and community buildings. Others hang in classrooms, gyms, and cafeterias. At least one canvas map roams the U.S. on tour, courtesy of the postal service. Perhaps one day soon we'll find these beautiful maps in nursing homes, libraries, and other public spots--not to mention the playground!

#### Why the big interest in the World Map Project?

First, the maps are fun to make. They instill pride in accomplishment and boost confidence. They encourage cooperative problem-solving and build community. Just as important, they spark excitement in learning about the world everybody shares.

#### Who can do this Project?

The Project is for everyone. Mapmakers of all ages and abilities have had success: deaf children in Ghana, school students in Thailand, youth groups in Tunisia, 4-H'ers in North Carolina, Returned Volunteers in Oregon, at-risk kids in Atlanta. There's room for your group, too.

#### How big can we make our map?

The world map is adapted with permission from one created by the National Geographic Society using the Robinson Projection. The length of this map is twice its height. This means your map can be any size (metric or U.S. standard) as long as it retains this 2:1 ratio of length to height. Most groups have made maps at least 6 ft. x 12 ft. Mapmakers in Atlanta created one measuring 15 ft., 2 in. x 30 ft., 4 in. There are rumors of an even larger one in Kenya...

#### Help! I can't draw! How can we make such a big map?

This guidebook gives you two ways to make your map, and you don't have to be a Leonardo for either one. The Grid Method lets you transfer information from pre-gridded map sheets onto just about any surface. To do so, you first draw a big grid on your background surface. Then you copy sections of the smaller map onto your larger grid one square at a time.

Almost everyone has drawn the world maps using the Grid Method, but you might want to make your world map using an overhead projector and a single world map transparency. The Projection Method lets you trace a projected map image directly onto a wall without making a grid.



#### What should we use for our background surface?

Walls are very popular: plaster, dry wall, cinder block, wood, or even brick. You can try floors and playground blacktops too! Some mapmakers have opted for non-fixed surfaces like sheets of pre-cut plywood, particle board, cardboard, or heavy plastic. (Draw your map on a single piece or try a series of panels.) Still others have created their maps on canvas, cotton sheets, even pieces of heavy paper taped together. (Businesses that sell vinyl flooring may be able to donate very large pieces of heavy paper that come rolled with the flooring.)

<u>Note:</u> You may want to work with pre-cut surfaces whose corners are already squared (e.g., sheets of plywood, pre-cut canvas, etc.) as these will be the easiest to construct your grid on. If your surface isn't already square, don't worry! This guide tells you how to work with these situations too.

#### How should we color our map?

Most mapmakers have painted their maps with acrylic or latex (water-based) house paint. (For a 6 ft. x 12 ft. map, all you need is about 4 ounces of 8 paint colors, plus a quart or more of ocean blue, a white/blue mix.) Depending on your background surface (and stamina), you can also use colored markers, colored pencils, or crayons. Some schoolchildren in Georgia have even made beautiful maps from colored tissue paper strips.

As for coloring your countries, use the color scheme suggested in this guide, or make up your own. If you like the challenge of designing your own color scheme, you will need at least four colors; the more colors you have, the easier it is. Remember, light colors will show map labels easier than dark ones. In assigning colors to various nations, keep in mind that countries and their territories are the same color. Thus, if England is green, so are the Bermuda Islands and the Falkland Islands. Therefore, the U.S. can't be green, or the Bermuda Islands would appear to be territories of the U.S.

#### How long will it take us to make our map?

It's best to take your time; this project is as much about process as product. Some groups have created their map in one intensive weekend. For others, the project evolves over several months. Each map is unique. Each has its own history. Relax: the learning is in the journey.

#### How much will it cost us?

Not much. This is a very low-cost project. If you make a wall map, all you need is pencils, paint, and brushes. Expect to spend a bit more to purchase background surfaces like plywood, paper, or canvas. Involve your community when gathering your resources--remember businesses, the PTA, civic groups, friends, and interested observers. You can also turn your project into a fund-raiser-take pledges or sell country tickets.

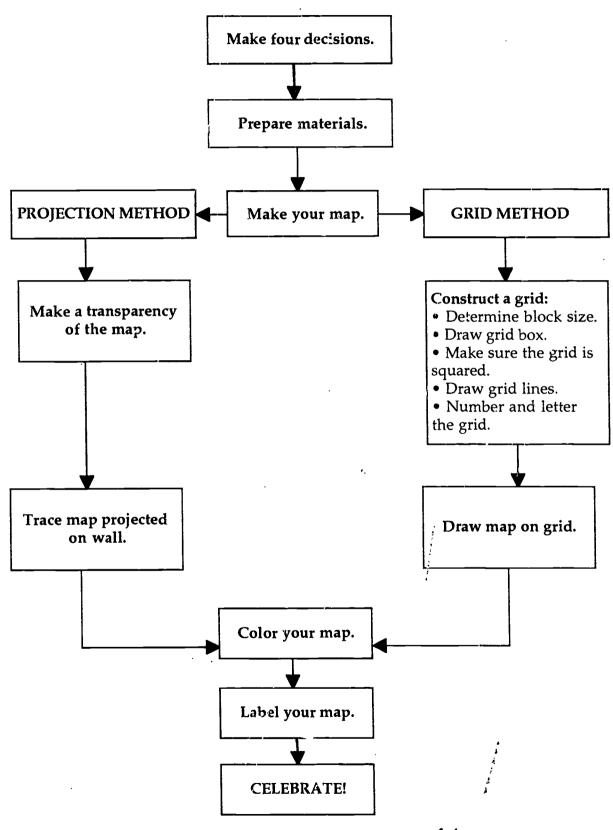
Can we improvise or make the map differently than the method suggested? Sure. Use your imagination. Try unusual materials. Depict physical features instead of countries. Create maps of your region. You can even apply your draw-by-grid skills to other projects like making posters and murals!



Part I: How to Make Your World Map



# **Project Overview**





# **Getting Started**

#### Make Four Decisions:

- 1. Which mapmaking method will you use--grid or projection? (See p. 5)
- 2. Approximately what size will your map be? Any border? (See p. 5)
- 3. What background surface will you use? (See p. 6)
- 4. How will you color your map? (See p. 6)

#### Prepare Your Materials

Prepare Your Map Section Sheets (p. 42-55).

Each gridded sheet represents a section of the world map. If you make your world map using the Grid Method, you'll need these sheets when drawing, coloring, and labeling. In preparation:

- Photocopy each section sheet (p. 42-55) to make single-sided copies.
- Color the countries on your photocopied section sheets according to your color scheme (p. 56-62). It's usually easier to draw from colored map sections. Colored sheets also eliminate endless "What-color-do-I-paint-this-country?" questions later on. Remind your mapmakers to color lightly over written information. Double-check the results.
- Protect the section sheets. Plastic-covered pages will last through many mapmakings and paint spills. Laminate them or slip them into plastic folders and tape shut.

### Prepare Your Background Surface

#### All surfaces

You'll want a background surface that is as clean, smooth, and as light-colored as possible. If you'll be painting your map, make sure your surface is non-porous. Prime it, if necessary, and let it dry. Paint the entire map area ocean blue, two coats if needed. With a blue background, you won't have to carefully paint the ocean around the continents and islands later on. Save some ocean blue paint for touch-ups. (General recipe: ocean blue = 1/2 quart of white + 3-5 teaspoonfuls of blue.)

#### Canvas

Use pre-coated artist-type canvas if possible. If your canvas is not pre-coated, you'll need to prime it with whatever product an art supply store recommends. Primer may seep through your canvas, so protect your floor. Also, keep in mind that linen canvas may shrink after getting wet.

Think about how you'll display your canvas once it's painted. Though not necessary, you may want to consider stretching your canvas on a frame before priming and/or painting. Doing so will smooth and "square" the surface as well as provide an attractive way to display the completed map. After constructing your grid, take the canvas from the frame if you will be working on the floor. Re-attach at the end of the project.

Another option is to lash the canvas to PVC plastic tubing, or sew a "pocket" the length of the canvas through which you can later insert a strong rod.

#### Paper and Cardboard

You can prime paper for an improved painting surface (see Canvas, above).

#### Floors and Playgrounds

Sweep and hose down your surface so that it is clean. Depending on the size of your map, you may not want to paint the entire area ocean blue.



### The Grid Method

#### Overview:

The goal is to create an accurate hand-drawn map of the world. To do so, you first draw a big grid on your background surface. Then you transfer information block-by-block from map section sheets (p. 42-55) onto this proportionately larger grid. Although it involves a number of steps, actually making and using the grid is quite simple. Schoolchildren all over the world have succeeded, and you can too.

#### Materials:

map section sheets, p. 42-55 yardsticks/meter sticks measuring tape (optional) long straightedge (optional) carpenter's square, protractor, or even a sheet of (squared) paper from this guide pencils pencil sharpeners erasers masking tape

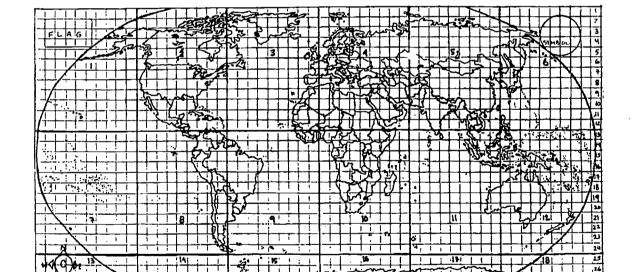


Figure 1: The World Map and Grid

### Setting Up Your Grid

A grid of 1,568 blocks (28 rows x 56 rows) already overlays your map section sheets. Your job is to make a similar (though larger) grid on your background surface. The following steps tell you how to size, center, and square your grid box; they also tell you how to draw all the grid lines. Many mapmakers find constructing the grid the most time-consuming aspect of the whole project; after making all those straight lines, actually drawing the map goes quickly.



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#### Determine the Exact Size of Your Grid Box

Your map will be the same size as your grid box. The exact size of your grid box depends upon how large you want to make each of its 1,568 grid blocks: the larger the blocks, the larger your grid. To figure out the dimensions of your grid box:

1. Decide how big you want each grid block to be.

block size = proposed length (in/cm) of your map divided by 56

= proposed height (in/cm) of your map divided by 28

Note: Blocks are square, so their length should equal height. Any block size is fine, but blocks at least 2 inches (5 cm) square are best.

- 2. Round your block size to the nearest half-inch (or cm). This will make setting up the grid much easier.
- 3. Re-calculate your map's final height by multiplying the rounded block size by 28. Re-calculate its final length by multiplying block size by 56.
- 4. Make sure your map's grid box will still fit within your background area.

Example: Proposed Map Size = 4 meters by 8 meters (400 cm x 800 cm)

Height of Block = 400 cm divided by 28

= 14.2 cm (round to 14 cm)

Length of Block = 800 cm divided by 56

= 14.2 cm (round to 14 cm)

Block size = 14 cm x 14 cm (blocks are square: height = length)

Final Map Height  $= 14 \text{ cm } \times 28$ 

= 392 cm (3.92 m)

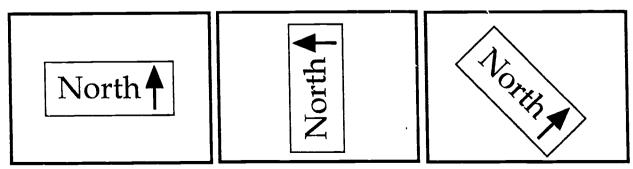
Final Map Length = 14 cm x 56

= 784 cm (7.84 m)

#### For maps painted on floors or playgrounds:

Before finding your grid box size, why not first orient your world map to true north? Use a magnetic compass to find out how your map should sit on its background surface. Most outdoor slabs will be oriented on a north/south or east/west axis. Some maps may rest at an odd angle to their background surface, but at least they'll be oriented correctly.

Figures 2, 3, 4: Map Orientations





#### Draw Your Grid Box

The four sides of your grid box make a rectangle whose corners form right angles (90 degrees). Without squared corners, your whole grid system will be skewed, causing distortions when you draw the map. So it's important to construct the four sides of your grid box with care.

It's easy to square and center your grid box if your background surface is itself already squared. If you're working with an unsquared background (as most mapmakers have), you'll need to go through a few extra steps:

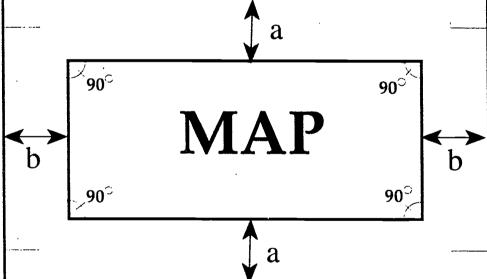
- For an unsquared area of wall or an irregular piece of hung canvas/paper, see p. 67.
- For an unsquared area of floor, playground, or an irregular piece of flat canvas/paper,

For <u>all</u> pre-squared surfaces (pre-cut plywood or canvas, some walls):

Figure 5: Centering Your Grid Box

- 1. Check to make sure the corners of your surface are indeed squared. See guidelines below.
- 2. Center your grid box on the surface: measure in from the outside edges of your background area. After you draw your box, double-check its dimensions to make sure they are still the same as your map.

a

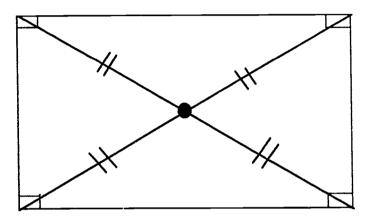




#### Make Sure Your Grid Box is Squared

Recall that each of the four corners should be right angles (90 degrees). An L-shaped carpenter's square (or even a plain piece of paper) can be a useful tool here. Another test: Are your corner-to-corner diagonals of equal length? If they are, you have a squared rectangle. Congratulations!

Figure 6: A Squared Rectangle



#### Draw Your Grid Lines

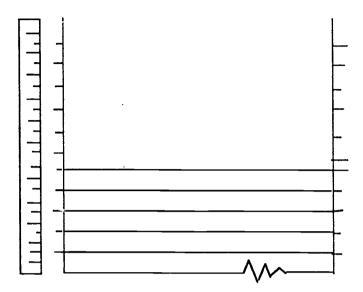
- 1. Mark the horizontal grid lines:
  - a. Place a yardstick/meter stick along the left edge of your grid box. The stick's base should abut the grid's bottom line.
  - b. Let n = the height of your grid's blocks. Mark points along the left edge every n inches/centimeters.
  - c. Follow similar steps for marking points up along the right edge of your grid box.
  - d. Draw parallel lines connecting the opposite points. Use a pencil and a very long straightedge, such as a thin plank or taut wire/string. (You may need to draw segment-by-segment or devise another strategy if you don't have access to a long straightedge. In any case, do not use chalk lines since they don't work well for walls and they smudge easily.)

For playgrounds:

Snap a chalk line through each pair of opposite points. Repeat the process until all horizontal grid lines are in place. Immediately paint these chalked grid lines with white paint, as you could quickly lose them within a day to weather or foot traffic. To speed the process, paint a dotted line using the side of a sponge. [This idea came from: David W. David, "Big Maps—Little People," *The Journal of Geography*, (March/April 1990), p. 60.]

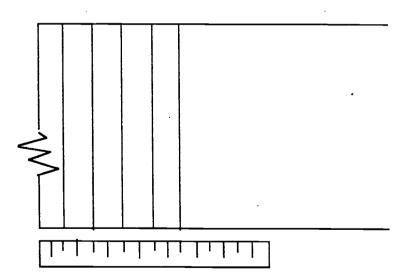


Figure 7: Horizontal Grid Lines



2. Mark vertical grid lines: measure and mark points along the  $\underline{top}$  and  $\underline{bottom}$  edges of your grid box as in Step 1 (a - d) on page 13.

Figure 8: Vertical Grid Lines





#### Number Your Grid

Numbering the grid helps mapmakers stay on target as they transfer blocks of information onto it from the map section sheets.

#### 1. Number Down

Number the 28 grid blocks vertically from top to bottom (1-28) in three places:

- down the grid's left edge (sections #1, 13, 17)
- down the grid's right edge (sections #6, 12, 18)
- down the center of the grid box (which is also the map's prime meridian)

#### 2. Number Across

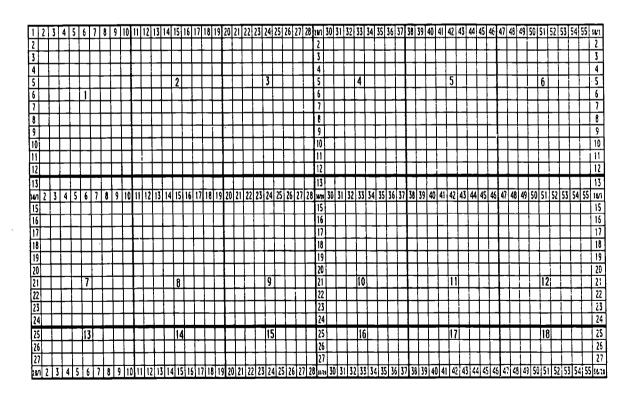
Number the 56 grid blocks horizontally from left to right (1-56) in three places:

- across the grid's top row (sections #1, 2, 3, 4, 5, 6)
- across the grid's bottom row (sections #13, 14, 15, 16, 17, 18, 19)
- across the center of the grid (which is also the map's equator)

#### 3. Number Each Section

Darken the grid lines that separate the map into 18 sections. Number the section #1-18 as marked on the sheets themselves (p. 42-55).

Figure 9: The Numbered Grid







### Drawing Your Map on the Grid

Now you are ready to draw the whole wide world! Although it sounds like a big undertaking, transferring information from the section sheets onto your grid is relatively straightforward-almost anyone can do it.

#### Materials:

copies of Practice Exercise #1: Enlarging Drawings By Grid, p. 63 copies of Practice Exercise #2: Drawing Maps by Grid, p. 64-5 copies of map section sheets, p. 42-55 pencils and erasers (most surfaces) chalk and wet rags (playgrounds)

#### Practice How to Dravs by Grid

- 1. Hand out Practice Exercise #1, p. 63. This worksheet gives your mapmakers a chance to hone their skills. It also lets you know who among your group may need more assistance. Some people, especially young children, will have a harder time than others enlarging drawings. Those who aren't particularly adept at map drawing, however, make wonderful map painters.
- 2. Hand out Practice Exercise #2, p. 64-5.
- a. Remind mapmakers that the key to success is making sure country borders or coast lines cross the large grid block in proportionately the same place as on the corresponding small grid block.
- b. Discuss strategies for drawing difficult map areas:
  - For complex borders, subdivide an especially challenging block into four smaller blocks. Be sure to subdivide the same block on the large map grid as well.
  - For numerous small islands, draw in a few of the larger South Pacific islands in each island group (Tuvalu, Vanuatu, etc.). Using these islands as reference points, paint the smaller islands directly on your surface.

#### Devise a strategy for working on the world map itself:

- 1. How many mapmakers can work on each section?
- 2. How many sections can they work on at one time?
- 3. In what order will they draw these sections?
- 4. Who will check the accuracy of each transferred section? How will it be done?

#### Drawing the Map

Transfer information from the small map sections onto the corresponding sections of the large grid. Copy block-by-block until you have completely drawn the entire map.

<u>Very Important</u>: When starting to draw in a new area, <u>always</u> check, double-check, and triple-check the coordinates on the section sheets with those on the large grid. Be sure that you begin drawing your country in the correct block. You may want to use paired teams to minimize confusion: one partner "navigates" (points to the correct block and checks the work) while the other draws. Encourage partners to switch tasks.



# The Projection Method

This is an alternate way of drawing your map on a wall (or other vertical surface) using an overhead projector. The Projection Method does not involve drawing a grid.

#### Materials:

transparency of world map, p. 41 copies of map section sheets, p. 42-55 overhead projector electrical outlet and extension cord pencils pencil sharpeners erasers masking tape

#### Steps:

- 1. Make a transparency of p. 41.
- 2. Project the transparency onto your wall. Adjust the distance of the projector from the wall until your map is the size you want. To prevent mishap, mark your chosen spot on the floor with a piece of tape.
- 3. Tape the transparency to the projector to prevent accidental movement. Also secure the projector.
- 4. Devise a work strategy with your mapmakers:
  - a. How many mapmakers can work at one time?
  - b. Who will check the accuracy of the tracing? Are all countries accounted for?
- 5. Trace the projected map information onto the wall. Use pencils.
  - a. First trace the large rectangle that frames the map, then the oval map itself.
  - b. Now trace the interior lines separating the map into 18 sections. (Refer to Figure 1,
  - p. 10.) Numbering sections 1-18 will be helpful when you refer to the section sheets for coloring and labeling your map.
  - c. Trace the continents before drawing individual countries.
- 6. Once you have completely traced the map, color and label it; see p. 18-20.



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## Coloring the Map

#### Materials:

your colored copies of the map section sheets
latex or acrylic paint
containers for paint (screw-on lids sometimes stick)
plastic spoons/cups (for mixing/stirring paint)
brushes of a variety of sizes (small-tipped brushes will keep many painters busy)
rollers an.! pans (for really big jobs)
rinse water cans
soap and water (for washing brushes)
newspapers (for catching drips)
paper towels
sponges
large erasers for removing the ocean grid lines

#### Mixing Colors

If you can't get ready-mixed colors, here are some recipes you may want to try. Except for ocean blue, which calls for a half quart of white, the others are measured in teaspoonfuls, as you need only a small amount of each (depending on the size of your map, of course):

Ocean blue = 1/2 quart of white + 3-5 teaspoonfuls of blue Green = 4 yellow + 2 blue Light Green = 7 yellow + 1 blue Purple = 4 red + 2 blue Lavender = 5 white + 2 purple Pink = 5 white + 3 red Orange = 5 yellow + 3 red

#### Mixing tips

Colors need to be light so that map labels will show up. To prevent a color from becoming too dark, always put the light color in your cup first and add the darker color bit by bit. Always shake your paint before <u>and</u> after mixing for best consistency.

#### Non-paint possibilities:

wide-tipped colored markers (waterproof) colored pencils and sharpeners crayons white cover-up for errors colored tissue paper (see p. 70)

#### To color:

- 1. Test your colors to make sure they cover your grid lines. If not, erase the affected grid lines. Light colors like yellow may not cover grid lines, even with 2 or 3 coats; mixing a little white with the color may help.
- 2. Pre-code country colors on the large map. Although mapmakers can consult the colored section sheets, facilitate the process further by putting an appropriate dot of color in each country. This will eliminate questions and confusion while your group is coloring.
- 3. Decide how you'll color the background area surrounding your oval map, the corner emblems (optional), and a rectangular border (optional).

18

4. Alert mapmakers to any special care of materials, e.g. how to wash brushes.



- 5. Devise a work strategy similar to the one you developed for drawing the map. Alternately, develop a job chart. Go over tasks and roles with your mapmakers. In addition to painters, you'll also need map checkers and cleaner-uppers.
- 6. Paint your map:
  - For best consistency, always shake your paint before using it.
  - Alert painters to the "danger" of painting adjacent to a still-wet country. Colors could mix at the border.
  - If grid lines cross your oceans, erase the lines or touch up with paint.



# Labeling the Map

#### Materials:

copies of map section sheets, p. 42-55 straightedges (optional) pencils (optional) extra paint for touch-ups and corrections permanent black markers (or brushes and paint for really big jobs):

- wide-tipped for oceans, equator, large countries
- medium tipped for medium-sized countries
- thin-tipped for small-sized countries

clear water-based finish (makes the painted surface smoother and easier to write on)

#### To Label:

- 1. Prepare your map's surface for labeling, if desired. First brush or spray a thin coat of finish on your map. When you've completed your labeling, add a second coat of finish. First test a small area to make sure that the product is compatible with the marker you used.
- 2. Decide what you want to label. Some possibilities:
  - continents
  - countries and territories
  - location of capitals
  - bodies of water (oceans, seas, gulfs, bays, lakes)
  - equator
  - · details on your emblems and on the compass
  - names of mapmakers
  - date of completion
- 3. Devise a work strategy:
  - Who will do the labeling?
  - What size(s) will the labels be?
  - Where, exactly, will the labels go?
  - Who will check the accuracy of the labeling (spelling, position)? How will it be done? How will errors be corrected?
- 4. Label: To minimize errors, labeler(s) may want to first write in pencil and then copy in ink.



# Celebrating the Map's Completion

Congratulations! You've finished! Why not hold a celebration to honor all those who helped with the map and to behold the beautiful result of all that collaboration?

Take a group photo in front of the map (and send World Wise Schools a copy) and call in the local TV crews or print media too.

Coincide your "world premiere" with an event like Earth Day or Geography Awareness Week. Invite people from other countries to share song, dance, food with you, or call in some Returned Peace Corps Volunteers. They are happy to speak about personal experiences living and working in countries around the world.

Other ideas: Try out some of the activities detailed in Part II: share slides or photos of the work in progress. Invite parents, classmates, community members, and others to write comments in a guest book. Have fun!

## Keeping the Map Current

The world keeps changing. Your map can either be a "snapshot in time" or a periodically updated document. If you opt for "snapshot," do record the date of completion on your map. If you want to keep the map current, keep abreast of political changes in our world. Create a file or compare your map with an updated one. Schedule an annual "catch-up" day to make changes; hang on to your supplies.



Part II: How to Use Your World Map



# Activities Before and During Mapmaking

#### How World Wise Are You?

(all grades)

#### Time Needed:

One session

#### Summary:

Mapmakers measure increases in geographical knowledge: they identify countries and/or draw a world map from memory both before and after the World Map Project.

#### Curriculum Link:

geography: locations of countries/regions

#### Materials:

pencils unlined paper copies of a world map identification sheet

#### To prepare:

1. Turn to the world map on p. 41

2. Number 10-20 countries/continents/seas, etc. on this map for participants to identify. Adjust the level of challenge to the age and ability of your mapmakers.

3. Make photocopies of this adapted map sheet. Participants can write their answers on this sheet-or devise a multiple choice answer sheet for them to use instead.

#### Steps

- 1. Briefly introduce the World Map Project and get feedback:
  - What kinds of things could we learn by doing this project?
  - What could we specifically learn about geography?
  - Is it important to know where countries are and what they are like? Why?
  - How could we find out whether we have learned more about world geography by doing this project?
- 2. Introduce the map identification sheet as <u>one</u> way participants can measure how much they have learned about world geography during the course of the project. If appropriate, encourage your group to reflect on the strengths and weaknesses of this kind of assessment:
  - What could this kind of survey measure? (knowledge of specific facts)
  - What couldn't it measure? (attitude changes, understanding of cultural, political and economic realities in other countries. . .)
  - Despite its limitations, how could this survey still be a useful tool for us?
- 3. Distribute the identification sheets. Ask individuals to complete the survey to the best of their abilities; remind them the assessment is <u>not</u> a test. In addition to (or instead of) using the map identification sheet, have participants draw and label a map of the world <u>from memory</u>.
- 4. Collect the completed sheets. Do not go over the surveys with your group at this time. Remind your group they'll take the same survey (or draw another map) at the end of the project. They will then compare results of the two assessments to see how making the map affected their knowledge of geography. At the end of the project, you might also ask mapmakers whether they have also noted other changes, such as increased interest in global issues and/or gains in confidence.



### Create Your World

(grades 3-9)

#### Time Needed:

Several sessions

#### Summary:

Mapmakers design and conduct a survey whose results help them plan the specifics of their world map-to-be. This activity encourages an early sense of project ownership among mapmakers. Taking the survey to the community publicizes the World Map Project and creates a wider circle of interest and support.

#### Curriculum Link:

language arts: written and oral communication

mathematics: compiling, quantifying, and graphing data

#### Materials:

copies of a world map survey which your group will design during the activity graph paper or pie charts to record survey data (optional) chalkboard or flip chart

#### Steps:

- 1. Inform your group they'll be designing a survey that will help them make decisions about how to make their map. Have group members identify some of the decisions they need to make about their world map (see p. 5-6 for ideas). Record these questions on the chalkboard.
- 2. Work with your group to develop these questions into a brief survey similar to the example below. Questions should have easily tabulated answers (e.g., yes/no), but consider asking an open-ended question or two as well:

Example: "We're planning to make a really big world map. . ."

- Do you think this is a good idea? yes/no (Why or why not?)
- Of the following locations, which is the best place for our map?
- Of the following colors, which 5 should we use to paint the countries?
- Of the following sizes, which size map would you like us to make?
- Would you like to help with this project? yes/no (In what ways?)
- 3. Have your group first survey themselves:
  - Distribute copies of your survey.
  - Have pairs survey one another.
  - When everyone has been surveyed, record the results of the survey on a chalkboard or flip chart.
  - Have teams of 4-6 persons analyze specific portions of the survey data. (For example, team #1 analyzes all the data about map color preferences). Charge each team to visually represent that data using bar graphs or pie charts. Have them present their findings to the whole group.
- 4. Extend the survey process to your whole school or local community:
  - Have each member in your group survey three or more people. Be sure to first discuss survey etiquette. You may want community surveyors to travel in pairs, or with an adult; secure parental permission if necessary.
  - Compile the results by dividing the surveys among several teams. Have each team contribute its tabulations toward a whole group total. Record results on the chalkboard.
  - Now have teams analyze specific portions of the totaled data as in #2 above.



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- Have each team present its findings to the whole group. Compare the results of this larger survey with the smaller in-group survey. Make preliminary project decisions based on the results of the survey(s).
- 5. Writing assignment: have group members do any of the following:
  - Summarize their team's data or impressions in a paragraph;
  - Compare/contrast the survey results: 1) between group teams, or 2) between the whole group and the wider community;
  - Draft a news release detailing the World Map decisions reached by your group; publish it in the school or local newspaper--let your community know what you're up to!



### Drawing by Grid

(all grades)

#### Time Needed:

One session

#### Summary:

Mapmakers practice drawing by grid in preparation for drawing countries on the world map.

#### **Curriculum Link:**

mathematics: measurement, ratio and proportion

geography: shapes and locations of selected countries/regions

#### Materials:

world map, p. 41 (optional)

map sections sheets, p. 42-55 (optional)

copies of Practice Exercise #1: Enlarging Drawings by Grid, p. 63 copies of Practice Exercise #2: Drawing Maps by Grid, p. 64-5

chalkboard or flip chart

#### Steps:

- 1. Give a brief overview of the Grid Method. Mapmakers will quickly grasp the idea if you visually demonstrate what you're talking about. Make a few simple sketches and show the gridded world map (p. 10) or map section sheets (p. 42-55).
- 2. Have mapmakers practice making an enlarged drawing by grid: distribute Practice Exercise #1.
- 3. Have participants specifically practice drawing map sections by grid: distribute Practice Exercise #2. Discuss strategies. See p. 16.

#### Peace Corps Connection:

Have mapmakers draw a map of the Volunteer's host country using the Grid Method. You will need to do some advance preparation: Obtain a simple map of the Volunteer's country, construct a grid on it, and make photocopies. Also make and photocopy blank grids to transfer the drawing onto. Have mapmakers locate the Volunteer's site on the map.



### Changing the World

(grades 6-12)

#### Time Needed:

One session for map work and one session for research

#### Summary:

Participants note changes in political geography by comparing a section of the world map against an earlier map of the same region.

#### Curriculum Link:

language arts: written and oral communication geography: location of countries/regions social studies: political history

research skills

#### Materials:

copies of world map section sheets or world map (if completed) out-of-date map resources (atlases, encyclopedia)--the older the better current encyclopedia

#### Background:

The world keeps changing: the seas swell and recede, the continents drift, and land forms literally rise and fall. Geological changes may be often imperceptible within one human lifetime, but political change can be rapid. Nations too rise and fall, reshape borders, change names, and gain new capitals. Because of these historical changes, mapmakers are constantly redrawing the world. In this activity, participants will look for changes in the world's political geography. For a tighter focus, you may want to adapt the lesson to address regions particularly rich in recent change: Europe, Africa, and/or Asia.

#### Steps:

- 1. As introduction, draw your group's attention to the dynamic nature of the world map. Discuss:
  - What type of information on the map could be considered unchanging? Why?
  - What kind of information is subject to change? Why?

Inform your group they'll be looking for examples of how countries/regions on the world map have changed over time. Can anyone give an example of a recent change in political geography?

- 2. Divide regions of the world among teams of 2-4 persons. Assign specific section sheets to each team, as below, or make your own regional divisions.
  - #2 (North America)
  - #3 (North Atlantic)
  - #4 (Eastern Europe)
  - #5 (Asia)
  - #6 and #1 (North Pacific)
  - #7 and #8 (South America)
  - #9 and #14-17 (South Atlantic and Antarctica)
  - #10 (Africa)
  - #11 and #12 (India/Australia)



- 3. Instruct each regional team to check the geographic information (borders, names of countries, capitals, rivers, etc.) on its map section(s) against an out-of-date map. Have team members note the following:
  - What year was the resource you consulted published?
  - What changes (if any) in borders, names of countries/capitals, etc. do you find since that date?

Note: Your world map is drawn according to the Robinson Projection. The resource maps you consult may represent other projections. The difference in projections may affect the shape of land masses within a region. Greenland, for example, appears quite differently in the Robinson Projection than on the Mercator Projection. Alert your group to this possibility.

- 4. Challenge your teams to find out the reasons for the specific changes in political geography they discover; have them research the history of these countries or regions.
- 5. When research is complete, have teams share their findings with the whole group. Ask them to point out the changes on the world maps explaining reasons for those changes, if known.

#### Peace Corps Connection:

Have your group pay particular attention to changes in the political geography of the Volunteer's host country or region. Encourage your group to share its findings with the Volunteer. Have group members ask the Volunteer to provide more detail, if possible, or to explain even earlier instances of change in that nation's political geography.



## Activities for a Completed World Map

**Musical Countries** (a game for playgrounds and other flat maps) (grades 3-5)

#### Time Needed:

One session

#### Summary:

Participants use the world map to play a geography game similar to musical chairs.

#### Curriculum Link:

geography: location of countries/regions

music: music of various cultures

physical education: outdoor game with listening skills

#### Materials:

world map as painted on a playground or floor one tape player music tapes of various cultures individualized chip or playing piece (one per player)--optional geography game cards

#### To prepare:

Create geographic criteria that, when read, will eliminate players from the game (see rules below). Write one statement per card. For example, a card that states *all equatorial countries* will force all players standing on countries straddling the equator to sit down (or remove their chips from play).

#### Sample criteria:

all South American countries
all landlocked countries
the Pacific Ocean
all countries east of India and west of Japan
all countries bordering the Atlantic Ocean
all land and sea locations in the Northern Hemisphere

#### Background:

This activity is designed for playgrounds where players can run around; however, you can adapt the game for smaller flat surfaces as well by playing with chips or game markers instead.

#### Steps:

Inform your group it will be playing a game on the world map somewhat similar to musical chairs. The rules are as follows:

- 1. While the music plays, everyone is free to roam the Earth (or move his or her chip).
- 2. When the music stops, players must freeze in their tracks, and listen carefully to the statement you read from the game card you have randomly pulled from the pack.
- 3. Players whose position on the map is described by what you read on the card must remove themselves from play. Have them sit down near the map's border (or remove their chips).
- 4. Players continue to roam and halt according to the random breaks you make in the music. As the game progresses, fewer and fewer players will remain. Those still in the game after a predetermined length of play are world champs!



Peace Corps 29 32 World Wise Schools

### What Shape Am 1?

(grades 3-9)

#### Time Needed:

One session for map work and one session for research

#### Summary:

Participants trace shapes of particular countries on the world map and discuss reasons for the locations of specific borders.

#### Curriculum Link:

geography: location, shape, and topography of selected countries social studies: political history of selected countries research skills

#### Background:

Physical factors such as rivers, mountains, and coastlines often form natural boundaries for a country. Many times, however, a country's shape reveals as much about its history as its topography. Human factors such as wars, treaties, ethnic demographics all influence borderlines too.

#### Materials:

world map sheets of tracing paper (or thin typing paper) cellophane tape (if needed) reference materials (topographical atlases, encyclopedia) colored pencils, crayons, or markers chalkboard or flip chart

Note: You can adapt this activity for different ages and interests. Emphasize steps 1-4 for younger groups, steps 4-7 for older groups.

#### Steps:

- 1. Invite participants to join you in a hunt across the map for countries with interesting shapes. Many people see a boot and soccer ball when looking at Italy and Sicily; what do you see in Cuba? Australia? Senegal? Encourage imaginative responses.
- 2. Divide participants into pairs and have each pair trace on paper one or two countries from the world map whose shape is especially interesting to the two of them. Pairs may also want to color and/or decorate their traced shapes to illustrate what they resemble (e.g., put eyes on a country shaped like an animal).
- 3. When everyone is done, have pairs share their shapes with all or part of the whole group.
  - What do we "see" in the shape of this interesting country?
  - Who can identify this "mystery" country and/or locate it on the world map?

#### Variation:

Invite pairs to share their shapes with the group <u>without</u> divulging the name and location of the country in question. After all shapes have been shared, distribute them to small teams. Challenge each team to work together to discover the name and location of each mystery country.

- Re-focus your group's attention to reasons why countries have different shapes. Discuss:
  - Why aren't all countries the same size?
  - What causes countries to have different sizes and shapes?
  - Do countries ever change shape? Why? Can anyone give an example?



5. Have pairs (or individuals) find out why their chosen country has the shape it does. Have them consult a topographical map of their country and also research its history.

While they may not find reasons for the location of every border, challenge your researchers to identify as many factors as they can. For example, does a river or mountain range form the southern boundary; does a straight eastern edge suggest a political division? Encourage researchers to write down their findings on their individual maps, near the borders in question.

- 6. Have pairs share their findings. Make a list on the chalkboard of the most common factors influencing the placement of a country's borders.
- 7. Display everyone's labeled drawings next to the world map, if possible.

#### Peace Corps Connection:

- 1. Have participants analyze the shape of the Volunteer's country in a way similar to step #5 above. Make predictions about what caused the borders of this nation to be drawn where they were. Share the predictions with the Volunteer.
- 2. You may also want to ask the Volunteer to describe the size/shape of his or her country at an earlier point in its history. Why is it no longer this shape? What impact, if any, have these changes had on the country and its people?



#### We are the World

(all grades)

#### Time Needed:

Two sessions several days apart

#### Summary:

Participants trace their family heritage on the world map.

#### Curriculum Link:

social studies: immigration

geography: location of countries/regions

mathematics: quantifying data, creating charts

#### Materials:

world map

adhesive colored dots which can be easily removed from the world map surface chalkboard or flip chart

#### Background:

You can do this activity in one session. If many in your group are unsure of their heritage, however, you may want to do steps 3 and 4 several days later so these participants have a chance to talk to their families. As this activity involves personal information, you'll want to be sensitive in the manner in which you conduct it. Adapt the activity as necessary.

When introducing this activity, remind students that the United States is primarily a country of immigrants. Some of our ancestors came to the U.S. long ago, most freely, some by force. Others have arrived more recently. Only Native Americans have lived here for thousands of years, though long ago their ancestors arrived from other continents as well.

#### Steps:

- 1. Have participants consider immigration issues in general. Discuss and record ideas:
  - Why do people immigrate? How many reasons can you think of?
  - What would it be like to leave a country and come to a new one? What would be difficult about doing so?
- 2. Inform your group that it will use the world map to locate what regions members' families originally came from.

Share your own genealogical history with participants. Place a dot on the country(ies) or region(s) you believe your ancestors came from. You may also want to explain the reasons for their immigration to the U.S., if known.

- 3. Invite everyone to place dots on the world map representing his or her family heritages. Those who may not know their specific ancestry can still place dots indicating likely world regions (Asia, Africa, Europe, and so on).
- 4. Survey the results as a whole group. Solicit general reactions, then discuss:
  - Which countries/regions seem to have been home for many of our ancestors? Why might so many people from this world region have settled in this area of the U.S.?
  - How might our dot distribution look different if we lived in a rural/urban area? Why?
  - How might our dot distribution look different if we lived on the West Coast or East Coast? In the U.S. Southwest/South/Midwest/Alaska or Hawaii? If we all lived in (name of another nation)? Why?



• How would our dot distribution have looked different 100 years ago? Why? What might it look like 50 years in the future? Why?

#### Peace Corps Connection:

Have your group ask the Volunteer about the cultural diversity in his or her host country:

- Does the Volunteer's country have many people who trace their heritage to other lands? Why or why not?
- If people in the Volunteer's country trace their ancestry to other places, what places are these? Why did people from these lands settle in the Volunteer's country? How did they get there?

#### Variation:

Gather recent U.S. Census information about your region from a public library. Among other things, the Census breaks down information about your region's population by country of ethnic origin. Convert this data to percentage and have your group post this distribution on the world map as in steps 3 and 4.



#### Made In. . .

(all grades)

#### Time Needed:

One or two sessions

#### Summary:

Participants locate countries on the world map that have manufactured common objects in their daily lives.

#### Curriculum Link:

geography: location of countries/regions; natural resources

social studies: global economics; trade routes

#### Materials:

world map

small squares of paper which can easily be affixed and removed from the world map cellophane tape (if needed)

pencils

30-50 readily available objects from everyday life

The items must indicate their country of manufacture, e.g., "Made in China." You can collect them before the activity or wait and have participants gather them from their immediate surroundings. In a school setting, items could include any or all of the following:

- classroom objects (globe, crayon box, ruler, and so on)
- contents of student backpacks or desks, voluntarily shared
- labeled apparel (shirts, shoes, jackets), voluntarily shared

#### Background:

This activity introduces the concept of the interdependent global economy. Through just a sampling of items, participants identify a few patterns in international trade. In many cases, the patterns would have been far less complex one hundred years ago when a locality's economy expanded little beyond its immediate region. Today, of course, is a different story. Because of advances in technology and infrastructure, natural resources move freely across the world and manufacturing centers dot the globe.

Keep in mind that many countries exporting goods may not be represented in your map sample. First, your sample is very small. Big U.S. import items such as automobiles, electronics, and petroleum products probably will not be represented in your sample at all. Second, not all nations trade primarily with the United States; other markets exist for both geographic and political reasons.

Currently the United States im orts more than it exports. A nation imports items for a variety of reasons: it may lack the human or natural resources to manufacture the specific product; national demand may outstrip the ability to provide the item; and/or it is more economical to import the item than to manufacture it within country.

#### Steps:

- 1. Inform your group it will be investigating where everyday objects have come from. In anticipation of the lesson, have members "guess-timate" what percent of items they find will be made in the U.S. compared to those made overseas.
- 2. Have participants work individually (or in pairs) to locate items in their immediate environment that state their country of manufacture. To avoid duplication of effort, you may need to assign teams to specific search areas.



- 3. Instruct searchers to draw a small sketch of each item on a paper square. Have them also label the drawing with the name of the item and its country of origin.
- 4. When participants have identified and drawn at least 30 different items, have them go to the map and affix their squares by the relevant countries.
- 5. As a group, examine the product distribution on the world map. Solicit general reactions; then analyze the data by country, region, or continent. Look for patterns both in distribution and in types of items exported from particular regions. Discuss:
- a. What regions of the world seem to be the source of many of our imported items?
  - Any pattern to the type(s) of items we import from this region?
  - Why might this region export these particular things to the U.S.?
  - How would items from this region reach the U.S.? What routes might the items take to get here? How long might that take?
- b. What regions of the world aren't as well represented in our sample? What might be some of the reasons for this?
- c. How would our product distribution have looked different 50/100 years ago? Why?
- d. What countries/regions of the world do you think import items from the U.S.? Why? What kind of items might these be? Why?
- 6. For advanced groups: Have members group research topics related to U.S. trade relations with other countries. Have researchers share their findings with the whole group, making use of graphs/charts and the world map as appropriate. Possible topics:
- a. major U.S. import/export items
- b. major U.S. trading partners
- c. major trade routes to and from the U.S. (Trace them on an overlay; see p. 36-7)
- d. trade imbalances and economic effects
- e. major exports/imports of selected foreign nations

#### Variation:

Have participants identify types and sources of all materials used to make one specific everyday product, such as a pencil, a chocolate bar, a running shoe. They'll need to write to the manufacturer for assistance. Share and post the information on the world map as it becomes available.

#### Peace Corps Connection:

- 1. Have your group research the major imports and exports of the Volunteer's country.
  - Why might this country import the items it does?
  - Why might this country export the items it does?
  - With what nations does this country trade? Why?
- 2. Ask the Volunteer to list common manufactured items in his or her host country. Where were these items made? Post this data on the map as in step 4. How are the patterns similar/different from the U.S. import data? Why might this be?



#### World Watersheds (grades 6 and up)

#### Time Needed:

Varies

#### Summary:

Participants compare/contrast data drawn on an overlay across their world map

#### Curriculum Link:

varies

#### Materials:

world map

atlases that depict major rivers in each of the world's regions

large sheets of acetate or other transparent plastic sheeting to cover the world map strong adhesive tape

markers to use on the plastic overlay: permanent or washable--your choice, but test on the overlay beforehand

reference materials related to your specific topic

#### Steps:

- 1. Secure a sheet (or sheets) of plastic across your world map.
- 2. Have participants use markers to trace the outline of the continents and large land masses onto the plastic overlay.
- 3. Assign participants to specific regions on the map. Have them locate the major river systems in that area.
- 4. When the watershed overlay is complete, have participants look for connections between their data and the information on the world map beneath the overlay:
  - How frequently do rivers form natural boundaries between countries?
  - How frequently are country capitals located on a river or near a body of water?
- 5. Extend the investigation by doing a <u>second</u> overlay directly on top of the first. Repeat steps 1 and 2. This time have participants consult atlases to depict one of the following: mountain ranges, location of major cities, regional population densities. Analyze the results:
  - What connections do participants see between any of these depictions and the location of water systems?
  - What predictions could they make about specific countries on the world map based upon these additional dimensions of information?

#### Variations:

global patterns in vegetation global climate zones global patterns in agriculture global patterns in population distribution of world's language groups distribution of world's major religions former areas of colonialism ocean currents historic routes of explorers/navigators



current trade and travel routes hurricane tracking jet stream/prevailing wind patterns areas of acid rain fallout wildlife of the world (tape pictures of animals to country/regions of habitat: where is it possible to predict the climate or terrain of that region based upon the type of wildlife living there?) bird/whale migration routes global reserves of oil and other natural resources earthquake/volcano zones plate tectonics daily temperatures in select cities locations of world-famous monuments/structures time zones world tours hot spots in the news comparative data between nations: per capita GNP, consumption rates, infant mortality rates, water use, AIDS cases, population density, percent of persons under 15, military expenditure



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#### Math and the Map

#### Summary:

Participants use data from the world map to reinforce mathematical skills.

#### Curriculum Link:

geography mathematics

#### Materials:

world map paper and pencils reference materials as needed

#### **Background:**

You can incorporate the world map into many areas and levels of mathematics. Adapt the activities below to the needs and abilities of your particular group.

#### Estimation:

• Numbers of countries in a given region.

Example: How many countries would you guess are in Africa?

• Areas of countries in relation to one another.

Example: How many times might France fit within the continental United States? How could we find out? (Note: the Robinson Projection, like other map projections, creates some slight land-mass distortions.)

#### Venn Diagrams (sorting by principle):

Sets and subsets of countries sharing given criteria.

Example: Which equatorial countries in South America and Africa are landlocked?

#### Advanced Calculations:

• Adding/subtracting time.

Example: If it's 5:30 a.m. in Bangkok, what time is it in Washington, D.C.? (You'll need to a have time zone chart handy, or make an overlay--see p. 36-7.)

• Calculating population density.

Example: How does the population density of Bangladesh compare with that of Pakistan? of the United States? (Divide area by population and post the figures on the map.)

Using fractions.

Example: What fraction of Central American countries border both the Atlantic and Pacific oceans?

• Finding percentage.

Example: What percent of African nations are in the Northern Hemisphere?

#### Graphs and Charts:

- Creating bar graphs to compare information between countries. *Example:* What are the five most populous nations in Asia?
- Creating pie charts.

*Example*: What percent of Caribbean islands are territories? What percent of these belong to the United Kingdom? the United States?



Interpreting Statistics:

Comparing similar data among different countries, representing information in a visual, non-graph way.

*Example* #1. Using a resource like a world almanac, find the per capita GNP for various nations. Represent this information on your map, using adhesive (but removable) sticker dots, where one dot = x number of dollars. Remember to create a key to accompany your dot display.

Example #2: Collect daily temperature readings from cities around the globe (check daily paper). Post the data on the world map:

- track temperature patterns for one or more days
- calculate average daily highs/lows, or range
- search for patterns in global temperature distribution: What's the effect of longitude? latitude? being near bodies of water? elevation?

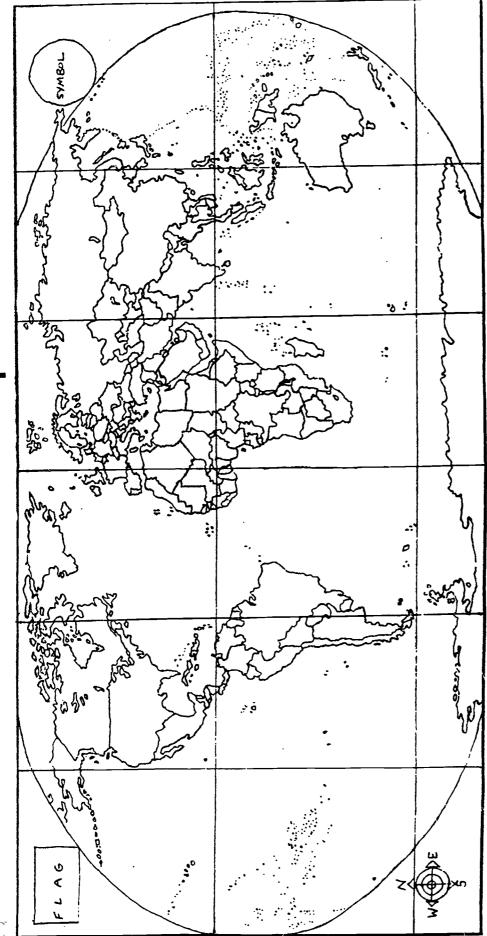


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# Part III: Resources For Making Your World Map



# The World Map

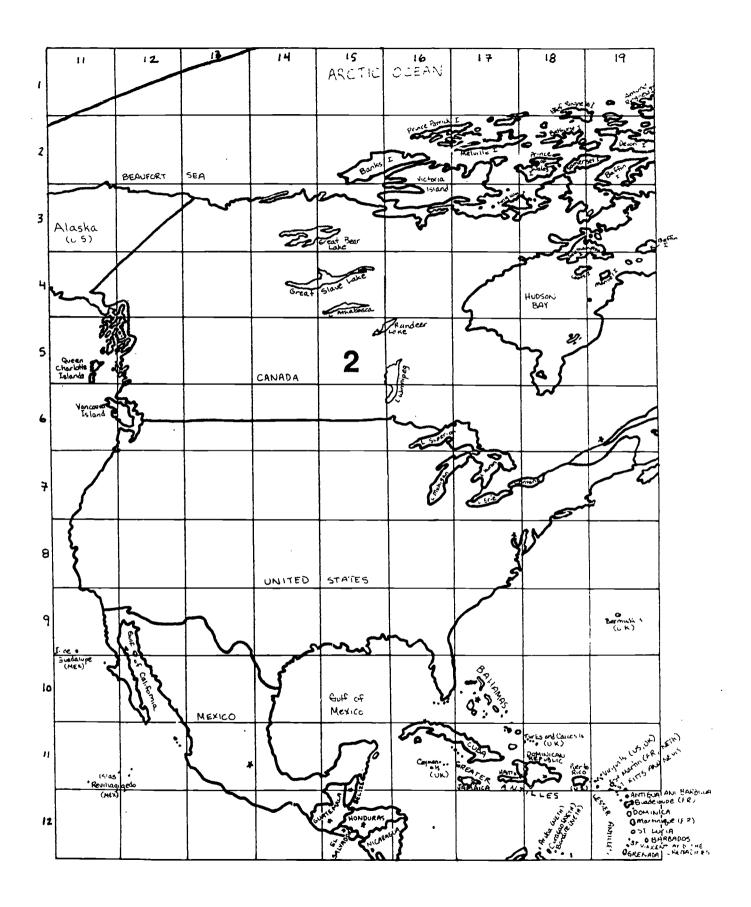




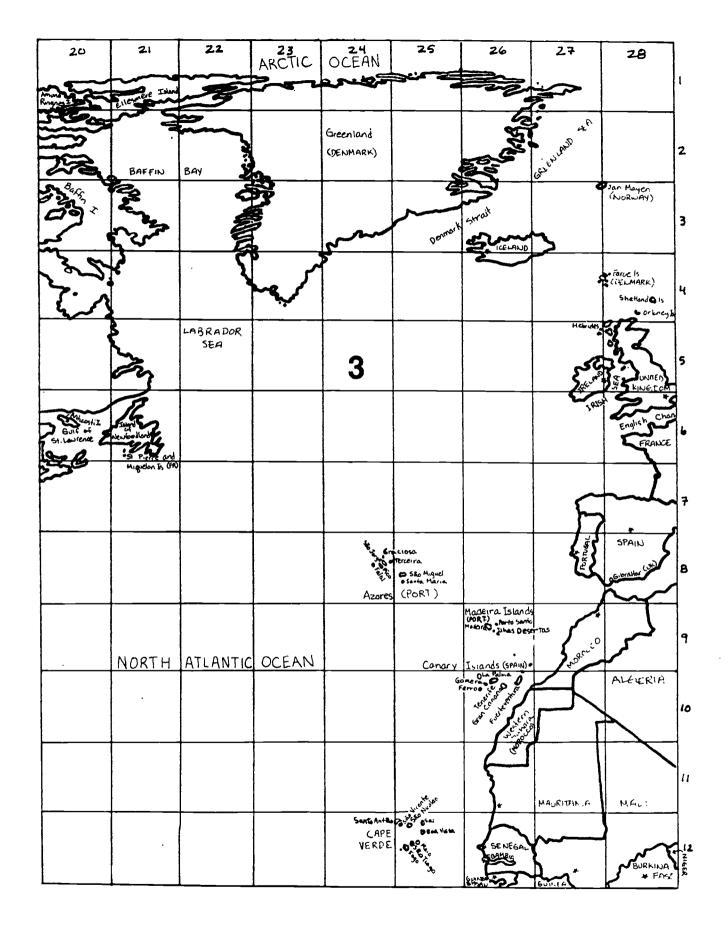


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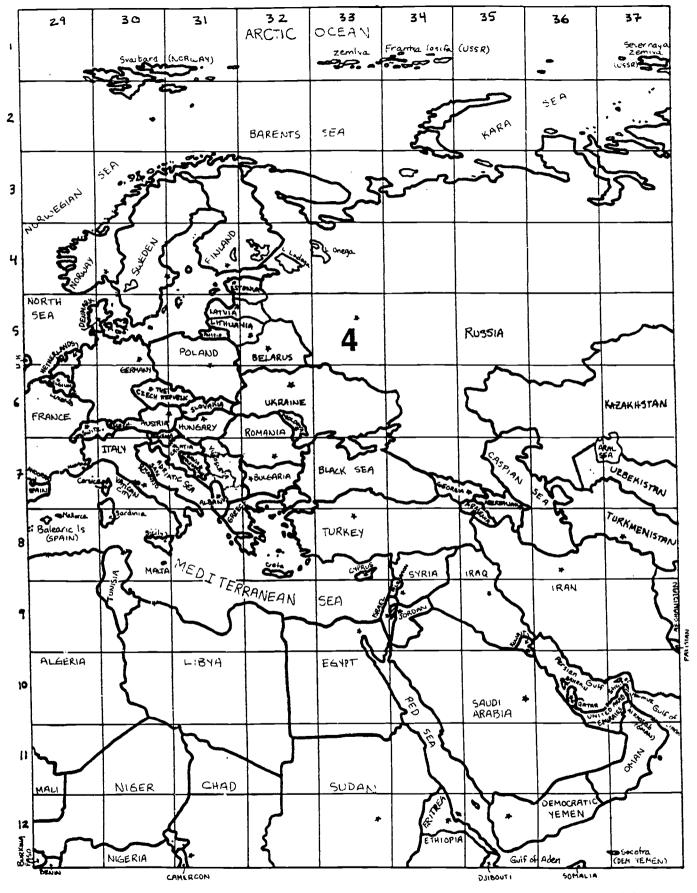




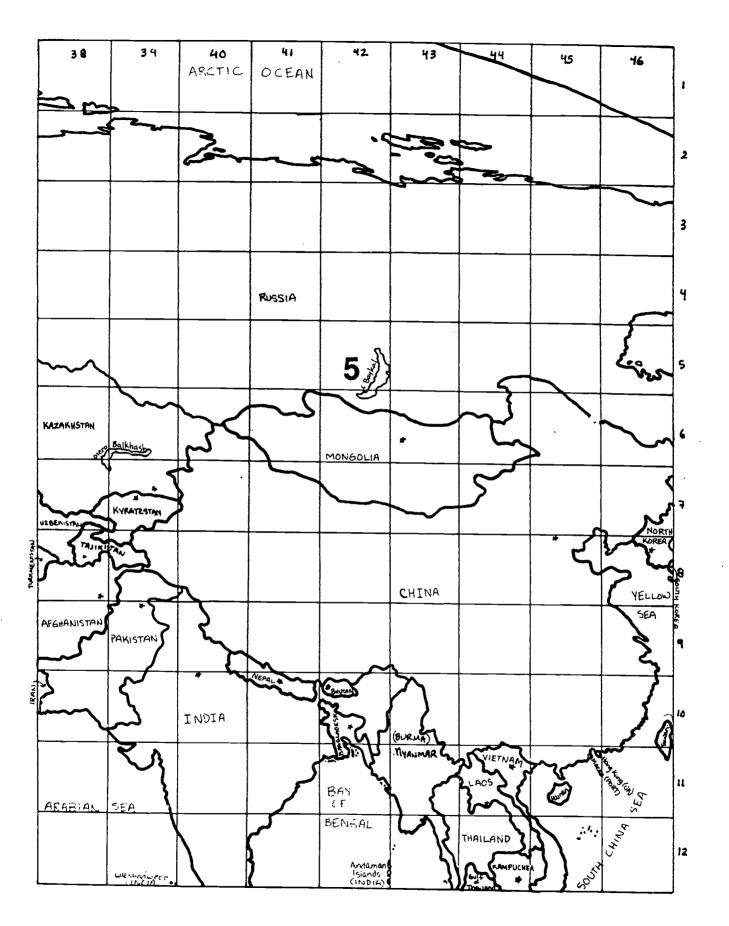




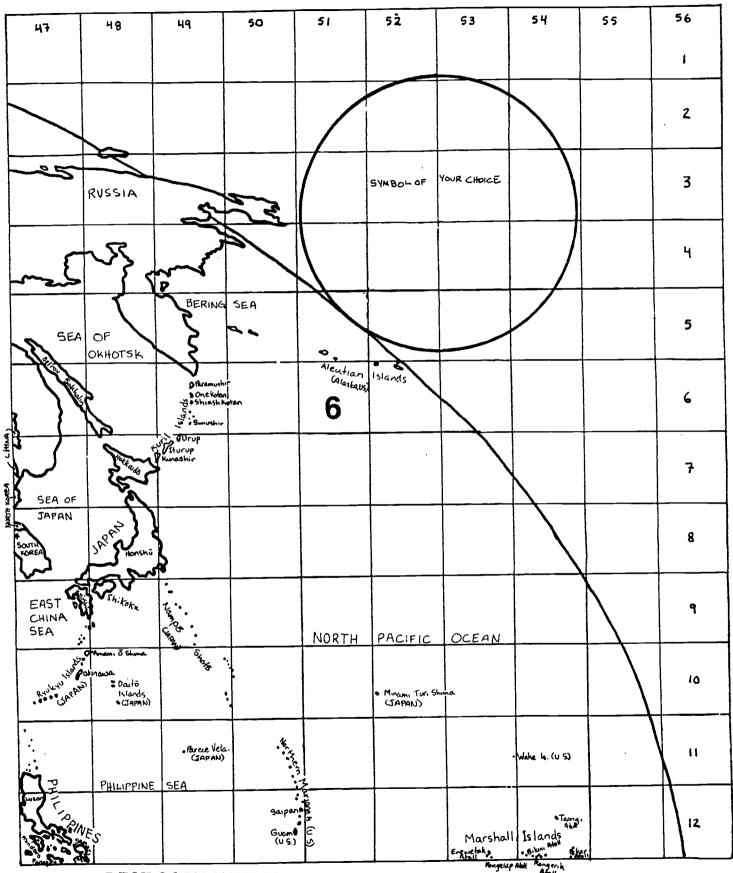












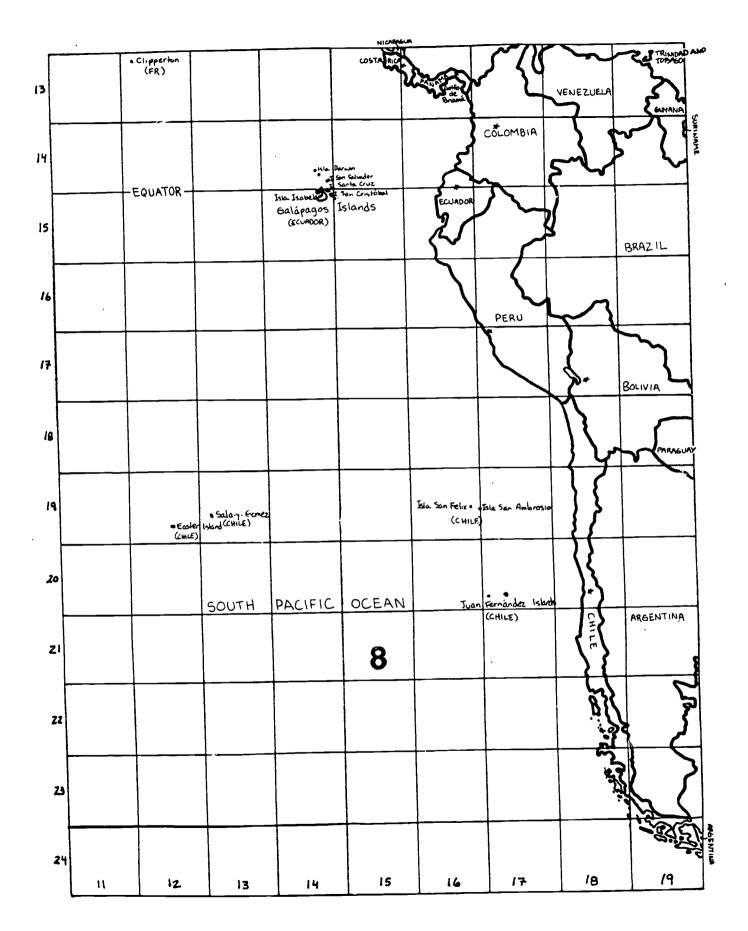
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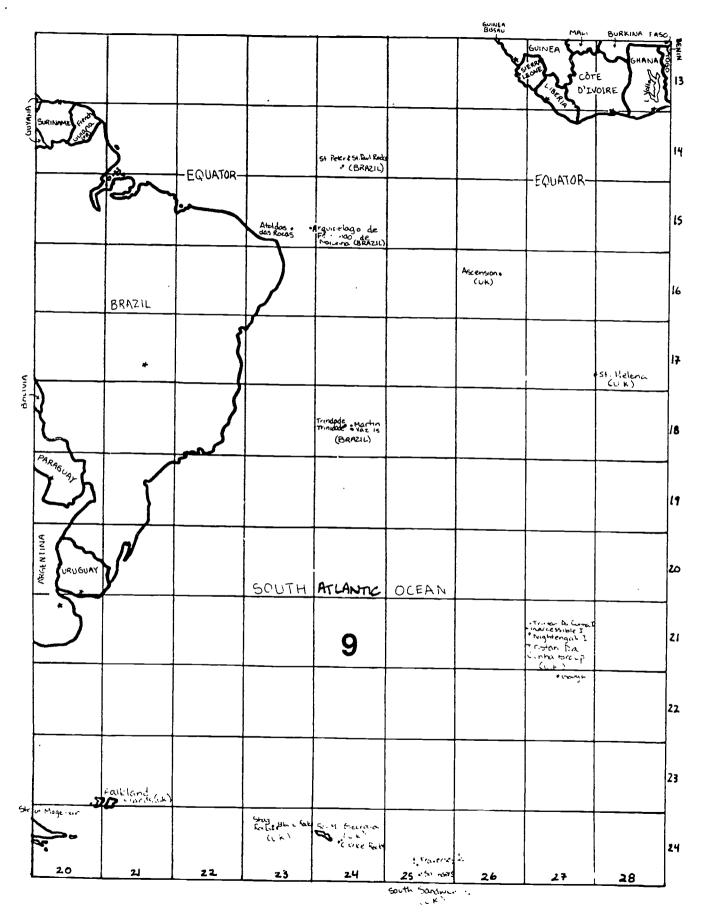
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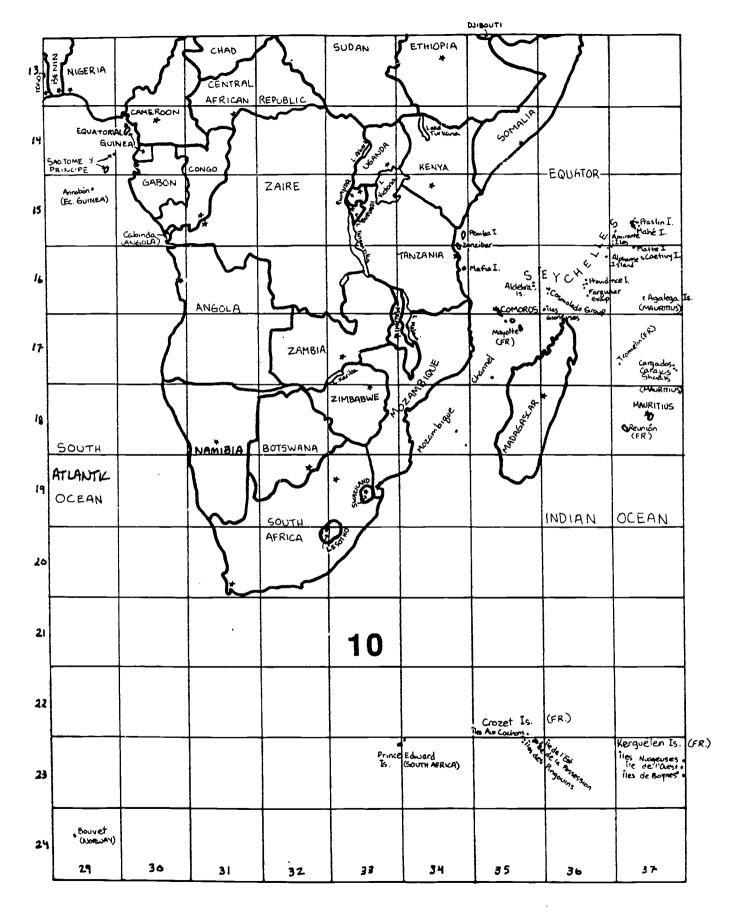








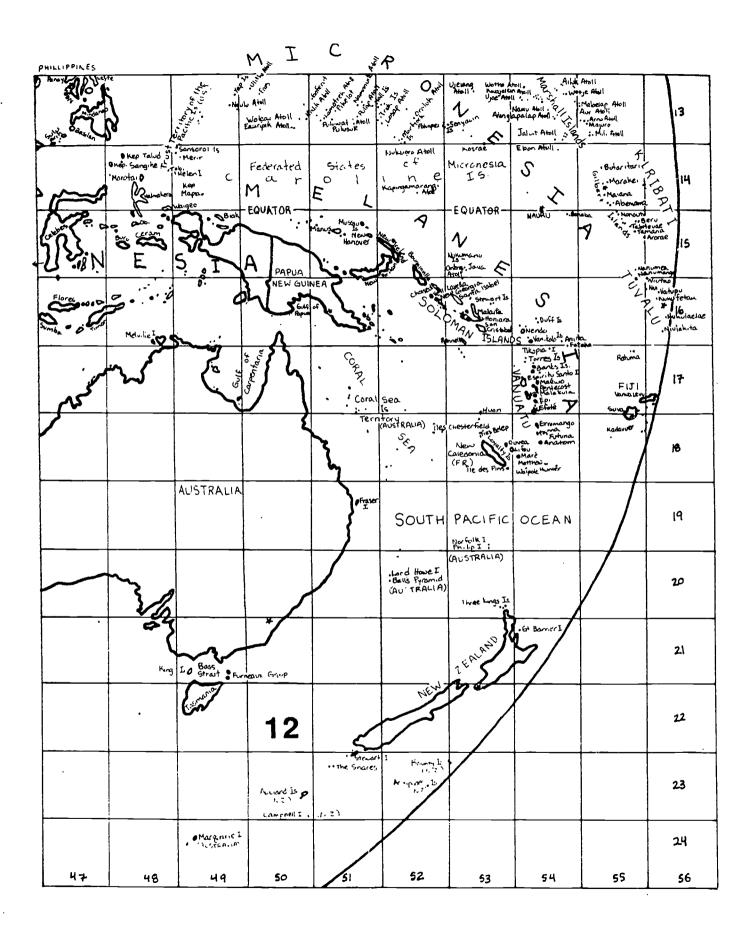
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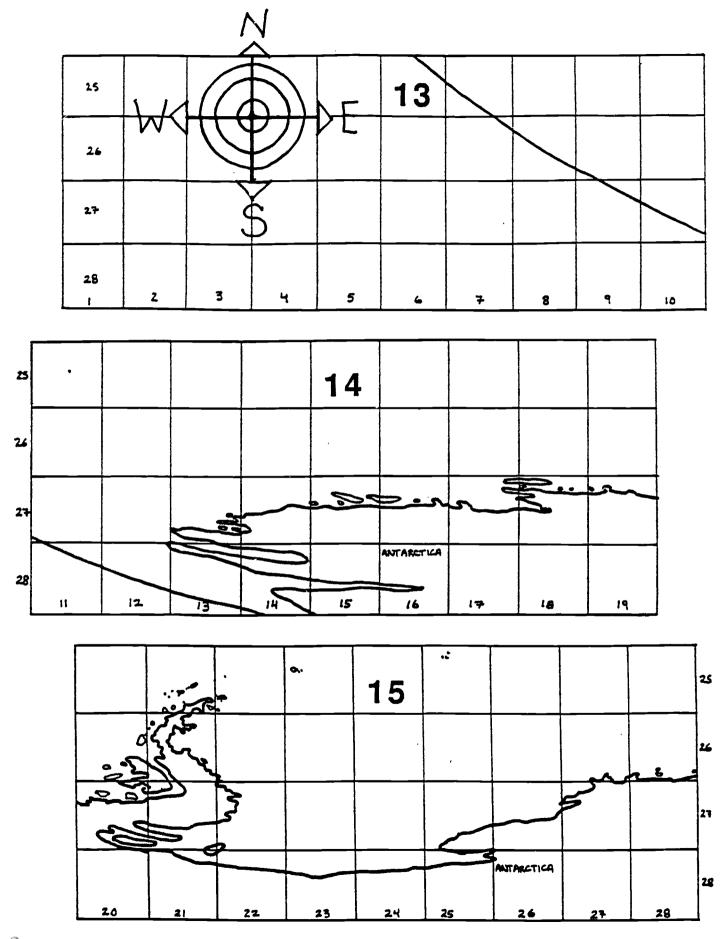


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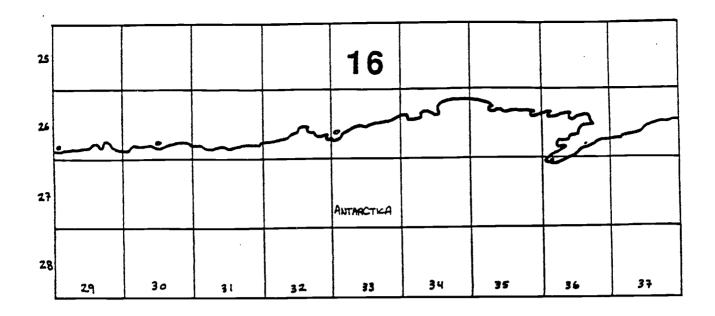


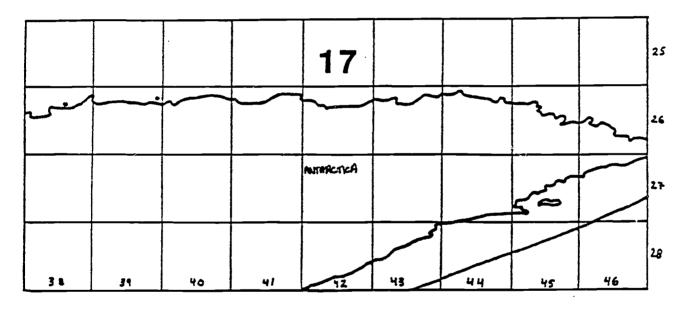


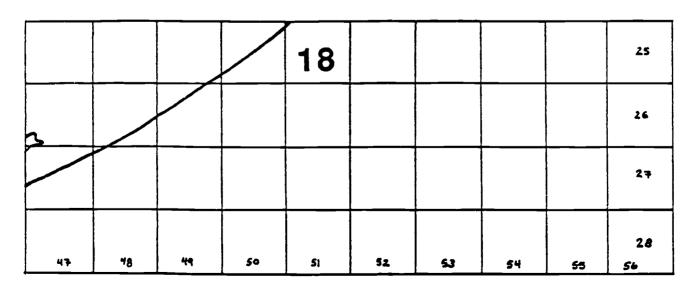














## Color Scheme for Countries and Territories

#### NORTH AMERICA

ColorCountryCapitalPurpleCANADAOttawaYellowMEXICOMexico CityRedUNITED STATES OF AMERICAWashington, DC

#### **Territories**

(United Kingdom) Orange Bermuda Blue Clipperton (France) (Mexico) Isla Guadalupe Yellow Yellow Islas Revillagigedo (Mexico) Saint Pierre et Miquelon (France) Blue (Denmark) Greenland Green

#### CENTRAL AMERICA

Capital Color Country BELIZE Belmopan Blue San José COSTA RICA Blue EL SALVADOR San Salvador Light Green Guatemala City **GUATEMALA** Orange Tegucigalpa **HONDURAS** Purple **NICARAGUA** Managua Green Panamá Red **PANAMA** 

#### Territories

Blue Isla del Coco (Costa Rica)

#### CARIBBEAN

Capital Color Country Saint John's ANTIGUA & BARBUDA Pink Nassau **BAHAMAS** Yellow **BARBADOS** Bridgetown Green Havana **CUBA** Light Green **DOMINICA** Roseau Yellow DOMINICAN REPUBLIC Santo Domingo Blue Yellow **GRENADA** Saint George's Port-au-Prince HAITI Pink **IAMAICA** Kingston Green Basseterre SAINT KITTS & NEVIS Purple SAINT LUCIA Castries Light Green SAINT VINCENT & GRENADINES Kingstown Orange Purple TRINIDAD & TOBAGO Port-of-Spain

#### **Territories**

Capital Country Color (Netherlands) Aruba Light Green (Netherlands) Light Green Bonaire (United Kingdom) Cayman Islands Orange (Netherlands) Curação Light Green Guadeloupe (France) Blue (France) Martinique Blue (United States) Puerto Rico Red 60



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#### Territories/CARIBBEAN

ColorCountryCapitalOrangeTurks & Caicos Islands(United Kingdom)OrangeVirgin Islands(United Kingdom)RedVirgin Islands(United States)

#### SOUTH AMERICA

Color Country Capital Light Green **ARGENTINA Buenos Aires** Blue **BOLIVIA** La Paz Orange BRAZII. Brasilia Red CHILE Santiago Yellow COLOMBIA Bogotá Light Green **ECUADOR** Ouito Red **GUYANA** Georgetown Yellow **PARAGUAY** Asunción Green **PERU** Lima Green **SURINAM** Paramaribo Purple **URUGUAY** Montevideo Pink VENEZUELA Caracas

#### **Territories**

Orange Black Rock (United Kingdom) Orange Clerke Rocks (United Kingdom) Red Easter Island (Chile) Falkland Islands Orange (United Kingdom) Orange Fernando de Noronha (Brazil) French Guiana (France) Blue Galapagos Islands Light Green (Ecuador) Red Isla San Ambrosio (Chile) Red Isla San Felix (Chile) Red Iuan Fernández Islands (Chile) Martin Vaz Islands Orange (Brazil) Orange St. Peter & St. Paul Rocks (Brazil) Sala-y-Gomez Red (Chile) South Georgia (United Kingdom) Orange South Sandwich Islands (United Kingdom) Orange Orange Shag Rocks (United Kingdom) Trinidade Orange (Brazil)

#### **EUROPE**

Color **Country** Capital Yellow ALBANIA Tiranë Andorra-la-Vieja Red **ANDORRA** Yellow **AUSTRIA** Vienna Yellow **BELGIUM** Brussels **BOSNIA-HERCEGOVINA** Yellow Saraievo Pink **BULGARIA** Sofia Light Green **CROATIA** Zagreb THE CZECH REPUBLIC Pink Prague **DENMARK** Copenhagen Green Blue **FINLAND** Helsinki Blue FRANCE **Paris** Purple **GERMANY** Berlin Green GREECE Athens Blue HUNGARY Budapest



#### **EUROPE** (continued)

Color Country Capital **ICELAND** Blue Revkjavik Pink **IRELAND** Dublin Red **ITALY** Rome Orange LIECHTENSTEIN Vaduz Red LUXEMBOURG Luxembourg Yellow Valletta MALTA Yellow **MONACO** Monaco **NETHERLANDS** Light Green Amsterdam Light Green **NORWAY** Oslo **POLAND** Warsaw Green Purple **PORTUGAL** Lisbon Light Green **ROMANIA** Bucharest Light Green SAN MARINO San Marino **SLOVAKIA** Orange Bratislava Purple **SLOVENIA** Ljubljana Yellow **SPAIN** Madrid Red **SWEDEN** Stockholm Light Green **SWITZERLAND** Bern Orange UNITED KINGDOM London Green **HOLY SEE** Vatican City YUGOSLAVIA Orange Belgrade

#### **Territories**

PurpleAzores(Portugal)GreenFaroe Islands(Denmark)OrangeGibralter(United Kingdom)Light GreenJan Mayen(Norway)Light GreenSvalbard(Norway)

#### **EURASIA**

Color Country Capital Light Green **ARMENIA** Yerevan Green **AZERBAIJAN** Baku Blue **BELARUS** Minsk **ESTONIA** Tallinn Orange **GEORGIA** Tbilisi Purple **KAZAKHSTAN** Orange Almaty Bishkek Green KYRGYZSTAN Light Green LATVIA Riga Pink LITHUANIA Vilnius **MOLDOVA** Kishinev Orange Yellow **RUSSIA** Moscow Red **TAJIKISTAN** Dushanbe Blue TURKEY Ankara Light Green **TURKMENISTAN** Ashgabat Kiev Red UKRAINE Blue **UZBEKISTAN** Tashkent

#### AFRICA

Color Country <u>Capital</u> ALGERIA Algiers Green ANGOLA Luanda Green Orange BENIN Porto-Novo Yellow BOTSWANA Gaborone 62



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#### AFRICA (continued)

Color Country Capital Green **BURKINA FASO** Ouagadougou Yellow **BURUNDI** Bujumbura Pink **CAMEROON** Yaoundé **CAPE VERDE** Praia Green CENTRAL AFRICAN REPUBLIC Yellow Bangui N'Djamena Light Green **CHAD** Green **COMOROS** Moroni **CONGO** Brazzaville Red DIIBOUTI Pink Diibouti **EQUATORIAL GUINEA** Light Green Malabo **EGYPT** Cairo

Yellow Blue **ERITREA** Asmara **ETHIOPIA** Addis Ababa Green **GABON** Libreville Orange Orange **GAMBIA** Banjul **GHANA** Light Green Accra Red **GUINEA** Conakry Pink **GUINEA-BISSAU** Bissau Pink **IVORY COAST** Abidjan **KENYA** Nairobi Purple Blue **LESOTHO** Maseru

Light Green **LIBERIA** Monrovia Purcle **LIBYA** Tripoli Yellow **MADAGASCAR** Antananariyo Yellow MALAWI Lilongwe Yellow MALI Bamako MAURITANIA Blue

Nouakchott Light Green **MAURITIUS** Port Louis **MOROCCO** Rabat Red Light Green **MOZAMBIQUE** Maputo Pink **NAMIBIA** Windhoek Red NIGER Niamey Blue **NIGERIA** Lagos **RWANDA** Kigali

Light Green Green SAO TOME & PRINCIPE São Tomé Light Green **SENEGAL** Dakar **SEYCHELLES** Orange Victoria SIERRA LEONE Orange Freetown Red **SOMALIA** Mogadishu SOUTH AFRICA Pretoria, Cape Town Red

Orange SUDAN Khartoum
Green SWAZILAND Mbabane
Red TANZANIA Dar es Salaám

**TOGO** Lomé Yellow Light Green TUNISIA Tunis Kampala Pink **UGANDA** Blue ZAIRE Kinshasa Orange ZAMBIA Lusaka ZIMBABWE Purple Harare

#### Territories

Light Green Apalega Islands (Mauritius)
Light Green Annobón (Equatorial Guinea)
Orange Ascension (United Kingdom)



(Morocco)

#### Territories/AFRICA (continued)

Country Capital Color Bouvet (Norway) Light Green (Angola) Cabinda Green (Spain) Canary Islands Yellow (Mauritius) Cargados Carajos Shoals Light Green (Spain) Ceuta Yellow Crozet Islands (France) Blue (Australia) Heard Islands Purple Blue Ile Amsterdam (France) He St. Paul (France) Blue Kerguélen Islands (France) Blue Madeira (Portugal) Purple Mayotte (France) Blue McDonald Island (Australia) Purple Melilla (Spain) Yellow Prince Edward Islands (South Africa) Red (Mauritius) Rodrigues Light Green (United Kingdom) St. Helena Orange (United Kingdom) Tristan Da Cunha Group Orange (France)

#### MIDDLE EAST

Blue

Pink

Capital Color Country Kabul **AFGHANISTAN** Purple **BAHRAIN** Manama Light Green **CYPRUS** Nicosia Pink Tehran Red **IRAN** Baghdad IRAQ Pink **ISRAEL** Jerusalem Red IORDAN Amman Green KUWAIT Kuwait Yellow Beirut LEBANON Light Green **OMAN** Muscat Purple Islamabad Orange . **PAKISTAN** TERRITORY UNDER PARTIAL PALESTINIAN CONTROL Purple

Tromelin

Western Sahara

Doha **QATAR** Orange Riyadh SAUDI ARABIA Blue **SYRIA** Damascus Orange UNITED ARAB EMIRATES Abu Dhabi Green Yellow YEMEN Sanaa

#### Territories

Al Khasab (Oman) Purple (Yemen) Yellow Socotra

#### ASIA

Capital Color Country BANGLADESH Dhaka Green BHUTAN Thimphu Purple Bandar Seri Begawan BRUNEI Yellow MYANMAR Yangon Yellow Beijing Pink CHINA INDIA New Delhi Light Green Jakarta Orange INDONESIA 64



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Tokyo **IAPAN** Green KAMPUCHEA Phnom Penh Light Green P'yongyang KOREA, NORTH Purple KOREA, SOUTH Seoul Orange Vientiane **LAOS** Purple Kuala Lumpur **MALAYSIA** Blue **MALDIVES** Male Green Ulaanbaatar **MONGOLIA** Blue Kathmandu **NEPAL** Red Manila **PHILIPPINES** Yellow Singapore Light Green **SINGAPORE** Colombo Red SRI LANKA Bangkok **THAILAND** Green Hanoi **VIETNAM** Red

#### **Territories**

(India) Andaman Islands Light Green (British Indian Ocean Territory) Orange Chagos Archipelago (Japan) Daito Islands Green (United Kingdom) Hong Kong Orange (India) Lakshadweep Light Green (Portugal) Macao Purple Nampo Shoto (Japan) Green Nicobar Islands (India) Light Green Parece Vela (Japan) Green (China) Pratas Pink (China) Taiwan Pink

#### SOUTH PACIFIC

Capital Country <u>Color</u> AUSTRALIA Canberra Purple FEDERATED STATES OF MICRONESIA Orange Suva FIII Light Green Tarawa KIRIBATI Green Majuro MARSHALL ISLANDS Green Yaren **NAURU** Orange Wellington **NEW ZEALAND** Pink Port Moresby PAPUA NEW GUINEA Light Green Nuku'alofa **TONGA** Orange Funafuti **TUVALU** Purple Port-Vila VANUATU Red WESTERN SAMOA Apia Purple

#### Territories

(United States) American Samoa Red (New Zealand) **Antipodes** Pink (New Zealand) Auckland Islands Pink (United States) Baker Island Red Ball's Pyramid (Australia) Purple (New Zealand) **Bounty Islands** Pink Campbell Island (New Zealand) Pink (New Zealand) Chatham Islands Pink (Australia) Christmas Island Purple (Australia) Cocos Islands Purple (New Zealand) Cook Island Pink (Australia) Coral Sea Islands Territory Purple



 $\frac{61}{61}$ 

(New Zealand)

(United States)

#### Territories/SOUTH PACIFIC (continued)

Color Country Capital Orange Ducie Island (United Kingdom) Blue French Polynesia (France) Red Guam (United States) Orange Henderson Island (United Kingdom) Red Howland Island (United States) Blue Wallis (France) Red **Jarvis Island** (United States) Red Johnston Atoll (United States) Pink Kermadec Islands (New Zealand) Light Green Lau Group (Fiji) Purple Lord Howe Island (Australia) Purple Macquarie Island (Australia) Green Minami Tori Shima (Japan) Blue New Caledonia (France) Red Northern Mariana Islands (United States) Purple Norfolk Island (Australia) Pink Niue (New Zealand) Orange Oeno Island (United Kingdom) Red Palau (Trust Terr. of Pac. Is.) (United States) Red Palmyra Atoll (United States) Purple Philip Island (Australia) Orange Pitcairn Islands (United Kingdom)

Tokelau Islands (Union Group)

Wake Island

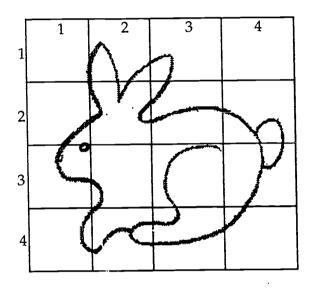


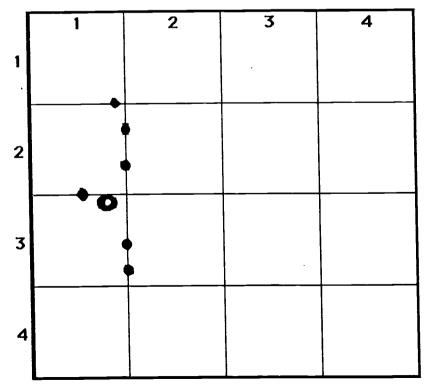
Pink

Red

# Practice Exercise #1: Enlarging Drawings by Grid

**Directions:** Make a larger copy of the rabbit in Grid #1 by drawing it in Grid #2. Hint: In order to draw a bigger rabbit in the grid on the right, you need to look at where the lines of the rabbit's body cross the grid squares in the smaller drawing. You can make dots on the large grid where these lines should cross the squares. Then connect the dots and look how your rabbit grew!





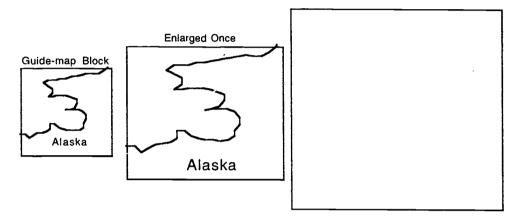


# Practice Exercise #2: Drawing Maps by Grid

**Directions:** Read the suggestions below; then practice your map drawing skills using the grid.

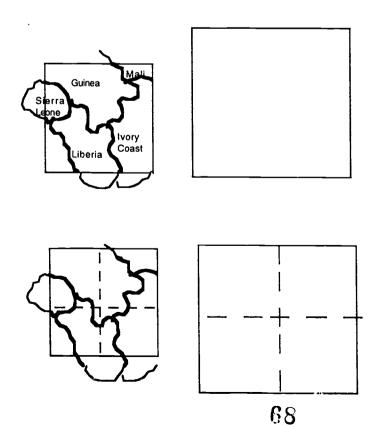
#### **Enlarging Your Drawing**

First, look at the guide-map block. Do you see how the form in the "enlarged once" block is larger but still has the same shape and proportions? When you draw, make sure the country border or coast lines cross the large grid block in proportionately the same place as in the guide map block. Now, you try it. In less than a minute, you've drawn over a thousand miles of North Alaskan coastline.



#### Sub-dividing Difficult Blocks

Drawing difficult map blocks will be four times as easy if you divide the guide map block into four smaller blocks. Be sure to sub-divide the same block on the large map grid as well.

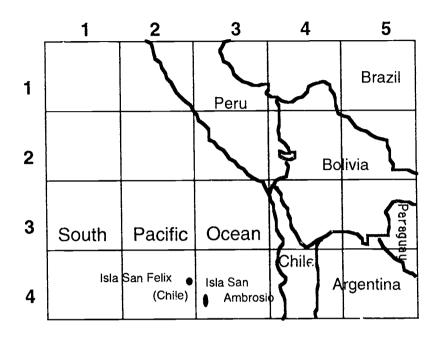


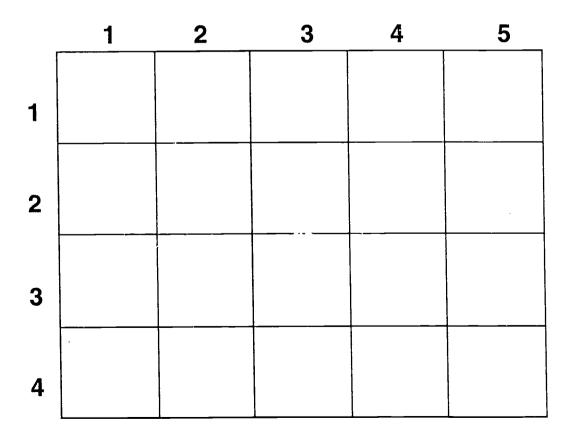


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Putting It All Together

As you draw this section of South America, notice where the borders cross the grid blocks. Remember to draw one block at a time.







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# **Appendix**



### How to Draw Your Grid on Walls

These instructions are for mapmakers who are drawing their maps on unsquared walls or irregular pieces of hanging canvas. Don't be put off by the number of steps. They simply tell you how to make a grid box with perpendicular sides using a simple plumb line.

#### Materials:

yardstick/meter stick(s) long straightedge pencils simple plumb line

#### To make:

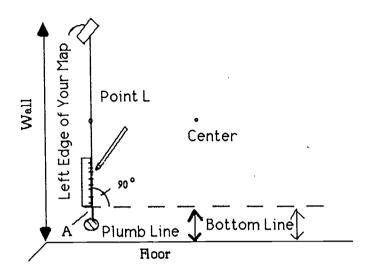
Attach a long string to a small flat weight, such as a washer or rock. The string should be longer than the height of your map. The weight should be about the size and shape of a half-dollar. It should also be smooth and flat on one side.

#### Steps:

- 1. Roughly center your map on your background surface. You can find the center point of your map by drawing a big X corner-to-corner across an area of background that is roughly the same size as your map. The center of the X is the center point of your map's grid.
- 2. Draw the left edge of your grid box:
  - a. From your center point, measure left 1/2 the length of your map. Let this be Point L.
  - b. Hang your plumb line through Point L. Tape the top of the string to the wall so that the plumb line crosses directly over Point L. Your plumb line should lie directly against the wall or cloth. When it is still, make marks on the background surface every foot (half-meter) or so down along the string.
  - c. Connect these marks with a pencil and straightedge to make the left edge of your grid.
- 3. Draw the bottom of your grid box:
  - a. Decide where you want the bottom of your map to be. Measure up from the floor this distance and make a series of marks the length of your map.
  - b. Connect these marks with a pencil and straightedge to make your bottom line.

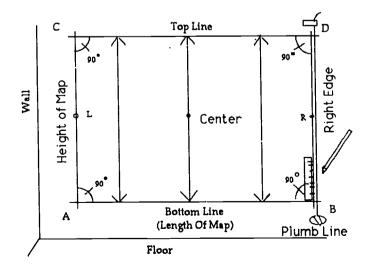


Figure 10: Grid Box Left Edge and Bottom Line



- 4. Draw the right edge of your grid box. Repeat steps 2a-c on the right side of your map. (Let R be the right edge point and B be the point of intersection between the bottom line and the right edge line.)
- 5. Draw the top of your grid box:
  - a. Mark the height of your map on both the left and right sides of your grid box. Do this by measuring up from Points A and B the same distance. Let the top left point be Point C and the top right point be Point D.
  - b. Draw a line connecting these two top marks (Points C and D). This top line should be parallel with the bottom line. If you don't have a very long straightedge, first make top points.

Figure 11: Grid Box Right Edge and Top Line



6. Now that you have your grid box, go to p. 13 and continue the process from there.



# How to Draw Your Grid on Floors, Playgrounds and Other Flat Surfaces

These instructions are for mapmakers who are drawing their maps on an <u>unsquared</u> horizontal surface like a part of a floor or a playground. You can also follow these instructions if you are working flat with an irregular piece of canvas.

#### Materials:

pencil or chalk string measuring tape or stick long straightedge carpenter's square (two rulers joined in an L shape)

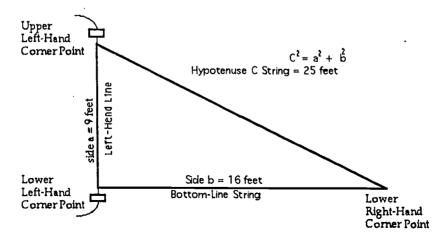
#### Steps:

- 1. Use the measuring tape and chalk to draw the bottom line of the grid.
- 2. Draw the <u>left line</u> of the grid. The trick here is to make sure that the left line is perpendicular to the right line. To do this, take advantage of the Pythagorean Theorem:  $a^2 + b^2 = c^2$ . For example,  $3^2 + 4^2 = 5^2$  because 9 + 16 = 25.
  - a. First, cut a string 16 feet long and lay it along the bottom line.
  - b. Cut another string 9 feet long and lay it along the left side of the bottom line.
  - c. Cut the third string 25 feet long. This string is the hypotenuse, so lay it in position. While keeping the bottom line string along the bottom line, move just the left line string until all the points match up. This produces a triangle where the bottom line is perpendicular to the left line. Draw the left line along the string.

<u>Note</u>: When laying the string for steps 2a-c, do not pull the string so tight that it stretches.

3. To make the rest of the grid, measure up from the bottom line and over from the left line.

Figure 12





# How to Make a Tissue Paper World Map

Colored tissue paper makes beautiful, textured maps. Glued to lightweight paper, these maps have an illuminated quality when taped to windows. They are also involve less clean-up than painted maps.

#### Materials:

copies of map section sheets, p. 42-55 "butcher block" paper or pre-gridded flip-chart paper (available through business supply stores) tissue paper in a variety of colors glue sticks black markers

#### Steps:

To make a tissue paper map, draw your grid on lightweight sheets of paper taped together. Some mapmakers have simplified the process by purchasing large sheets of <u>pre-gridded</u> paper. Hand draw your map information block-by-block as usual. (Note: If necessary, you can cut your paper map into workable sections during the project and reassemble it at the end.)

When you are ready to add color:

- 1. Select tissue paper appropriate to the countries you are coloring. Tear the paper into strips or patches.
- 2. Cover your targeted area with glue.
- 3. Affix the tissue paper strips so that they cover the targeted area in a collage-like way.
- 4. Don't worry about rough borders between colors. Once the paper is dry, outline the borders with a wide black marker, which will cover any gaps.
- 5. Label your map; see p. 20.



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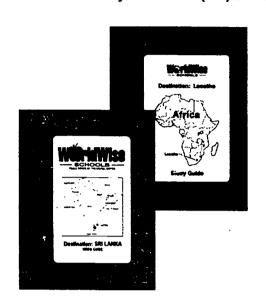
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